

REMARKS

Applicants respectfully request reconsideration of this application, and reconsideration of the Office Action dated March 16, 2005. Upon entry of this Amendment, claims 1-3 will remain pending in this application. No new matter is introduced as a result of this Amendment.

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The abstract is objected to because it is too long. In response, Applicants submit herewith an new Abstract of the Disclosure on a separate sheet of paper which complies with MPEP § 608.01.(b). Hence, this objection is overcome and its withdrawal is respectfully requested.

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Claims 1-3 are provisionally rejected under the doctrine of obviousness-type double patenting as being obvious over claims 1-3 of co-pending application no. 10/820,853. In response, Applicants respectfully request that this provisional rejection be held in abeyance until this application and the '853 application are indicated as otherwise being in condition for allowance. At that time, Applicant will address the filing of a terminal disclaimer.

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Claim 1 is rejected under 35 U.S.C. §102(b) as purportedly anticipated by Segerson (U.S. Patent No. 3,611,061). The Office Action asserts Segerson discloses each feature of claim 1. Applicants respectfully traverse this rejection.

Claim 1 concerns a flip chip bonder. The flip chip bonder includes a cutting means having a cutting tool for cutting the plurality of electrodes projecting from the front surface of the semiconductor chip held on the chuck table and arranged in the electrode cutting area to make them uniform in height.

Segerson does not teach or suggest a bonder apparatus for handling a semiconductor “flip chip.” In Segerson’s device, an electronic unit (31), e.g. semiconductor chip, is mounted on a mounting portion (23) in the center portion of a segment (12) including metallic members (11). Wire bonding pads (32), e.g. electrodes, on the electronic unit (31) and wire bonding areas (27) on the segment (12) are connected by a fine wire (33). The type of chip to be processed in the Segerson device is structured completely different from the flip chip bonded in the present invention.

By contrast, a “flip chip” as handled by Applicants’ claimed apparatus has a plurality of electrodes called “stud bumps” on its front surface. See Applicants’ Fig. 11. Each of the stud bumps is bonded directly to the substrate. In order to directly bond the electrodes arranged on the front surface of the flip chip to the substrate, the electrodes must be made to be uniform in height. For this reason, Applicants’ invention employs a cutting tool for cutting the plurality of electrodes projecting from the front surface of the flip chip held on the chuck table and arranged in the electrode cutting area to make them uniform in height. Segerson neither teaches nor fairly describes an arrangement with a cutting tool capable of handling a flip clip. Nothing in Segerson’s device would have taught, to those of ordinary skill in the art, cutting a plurality of stud bumps on the surface of a flip chip to make the stud bumps uniform in height. Hence, Segerson fails to teach or fairly describe each and every feature of claim 1, and cannot anticipate the claimed invention.

In view of the above remarks, Applicants submit this rejection is overcome and request it be withdrawn.

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Claim 1 is rejected under 35 U.S.C. §102(b) as purportedly anticipated by Sanchez (U.S. Patent No. 5,340,111). The Office Action asserts Sanchez discloses each feature of claim 1. Applicants respectfully traverse this rejection.

Sanchez, like Segerson, fails to teach or fairly suggest a device which includes a cutting tool for cutting the plurality of electrodes projecting from the front surface of the semiconductor flip chip held on the chuck table and arranged in the electrode cutting area to make them uniform in height. Sanchez discloses a semiconductor wire bonder that bonds a pad of a die (105) to a terminal of a semiconductor package (104) supported by a chuck (111) through a wire (118). Sanchez thus is not concerned with bonding flip chips nor cutting the stud bumps of the flip chips to make sure they are all of the same height. In other words, Sanchez neither teaches nor fairly suggests a flip chip bonder with a cutting tool arranged for cutting a plurality of stud bumps on the surface of a flip chip to make the stud bumps uniform in height. Hence, Segerson fails to teach or fairly describe each and every feature of claim 1 and cannot anticipate the claimed invention.

In view of the above remarks, Applicants submit this rejection is overcome and request it be withdrawn.

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Applicants respectfully submit that this Amendment and the above remarks address each outstanding objection and rejection in this case. Moreover, Applicants request the Examiner contact Applicants' undersigned representative once a determination is made that the application is otherwise in condition for allowance so that outstanding provisional obviousness-type double patenting rejection can be addressed.

If any fees under 37 C.F.R. §§1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No.02-4300; Order No. 033773.068. If an extension of time under 37 C.F.R. §1.136 is necessary that is not accounted for in the papers filed herewith, such an extension is requested. The extension fee should be charged to Deposit Account No.02-4300; Order No. 033773.068.

Respectfully submitted,
SMITH, GAMBRELL & RUSSELL, LLP

By:



Michael A. Makuch, Reg. No. 32,263
1850 M Street, N.W., Suite 800
Washington, D.C. 20036
Telephone: (202) 263-4300
Facsimile: (202) 263-4329

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